



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/664,332	09/18/2000	Noriya Hayashi	001195	4422

23850 7590 04/16/2003

ARMSTRONG, WESTERMAN & HATTORI, LLP
1725 K STREET, NW
SUITE 1000
WASHINGTON, DC 20006

EXAMINER

SELLERS, ROBERT E

ART UNIT	PAPER NUMBER
----------	--------------

1712

22

DATE MAILED: 04/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/664,332

Applicant(s)

HAYASHI, NORIYA

Examiner

Robert Sellers

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6-10,12,17-19 and 21-28 is/are pending in the application.
- 4a) Of the above claim(s) 9,17-19,21 and 23-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,6-8,10,12,22,27 and 28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Art Unit: 1712

The Request for Continued Examination along with the amendment and declaration filed March 3, 2003 (Paper Nos. 19-21) have been received and the following is responsive thereto.

Claims 9, 17-19, 21 and 23-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 8.

The text of section 103(a) of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 6-8, 10, 12, 22, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamazu et al., Buchwalter et al. Ohnishi, Starkey and Green Patent No. 4,252,592 in view of Green et al. Patent No. 4,299,938.

Green et al. Patent No. 4,299,938 is applied as a secondary reference for the teaching of a polyhydric alcohol as a co-curing agent with an anhydride. Otherwise, the rejection is maintained for the reasons of record set forth in the previous Office actions. The arguments and declaration filed March 3, 2003 have been considered but are unpersuasive.

Art Unit: 1712

The teachings of a reference are not confined merely to the examples.

Buchwalter et al. (col. 7, lines 2-4) discloses an amount of photoinitiator of from about 0.5 to about 10% by weight which is within the limits of the claimed range of from 0.1 to 6.0 parts by weight per 100 parts by weight of the components other than the photoinitiator.

Example 1 on page 65 of the specification contains a molar ratio of maleic anhydride:3,4-epoxycyclohexylmethyl-3,4-epoxycyclohexane carboxylate of 0.65:1. The weight of maleic anhydride is $98.06 \text{ g/mole} \times 0.65 = 63.7 \text{ g}$. The weight of epoxy resin is $316 \text{ g/mole} \times 1 \text{ mole} = 316 \text{ g}$. The ratio of maleic anhydride:epoxy resin is $63.7 \text{ g}:316 \text{ g} = 0.202:1$ or 20.2 parts by weight per 100 parts by weight of epoxy resin. However, the claimed concentration range includes molar ratios of as low as 0.1:1 which converts to a weight content of $9.806 \text{ g maleic anhydride}/316 \text{ g}$ 3,4-epoxycyclohexylmethyl-3,4-epoxycyclohexane carboxylate = 0.031 or 3.1 parts by weight per 100 parts by weight of epoxy resin. This value is clearly within the teachings of the range set forth in Starkey of from about 0.01 to about 10 parts by weight per 100 parts by weight of resin (col. 21, lines 12-16).

Green '592 (col. 2, lines 7-11) establishes a combination of an aromatic sulfonium salt photoinitiator and anhydride curing agent. It would have been obvious to employ the elected species of benzyl-4-hydroxyphenylsulfonium hexafluoroantimonate of Hamazu et al. (col. 3, lines 29-30) in an amount of from 0.01-20 parts by weight per 100 parts by weight of the epoxy resin (col. 3, lines 56-61) in order to optimize the cure rate.

Art Unit: 1712

Hamazu et al. explicitly names an acid anhydride in column 5, line 14 which meets the claimed limitation of an acid anhydride.

Ohnishi (col. 4, lines 44 and 47-51) espouses the elected species of photoinitiator present at a level of from about 0.01 to about 10 parts by weight per 100 parts by weight of the epoxy resin along with a curing agent (col. 5, line 16). It would have been obvious to use the anhydride curing agent of the Green (et al.) patents and Starkey at the calculated quantity of 0.31 mole per mole of epoxy resin in order to enhance the strength (Starkey, col. 21, lines 17-19) and to ensure a complete cure (Green et al. '938, col. 11, lines 61-63).

Examples 1-4 of the declaration address the rejection with respect to Buchwalter et al., Starkey and Green '592. It cannot be determined whether the amount of cationic photo-thermopolymerization initiator has been held constant since the concentration of 1.0 part by weight is only identified for Example 1 regarding the claimed species of Sun Aid SI-80L.

The evidence is not commensurate in scope with the claims concerning a representative sampling of the claimed proportion range of photopolymerization initiator of from 0.1-6.0 parts by weight per 100 parts by weight of the composition without the photopolymerization initiator (only 0.5 parts by weight, or 50% of Sun Aid SI 80L in 1.0 part by weight has been tested in Example 1). Furthermore, experimentation with species representing only claimed formula (IV) does not establish the criticality of the claimed structurally diverse photopolymerization initiators of formulae (IV') and (V).

Art Unit: 1712

The claims are open to a wide variety of structurally and chemically diverse kinds of photopolymerizable resin components as indicated by the listing on page 26, lines 6-17 of the specification. The testing of a single type of epoxy resin does not confer patentability on the other species within the realm of the claimed "photopolymerizable resin component."

The declaration is not germane to the rejection with respect to Hamazu et al. (cols. 13-14, Table 6, Example 26) and Ohnishi (col. 9, Example 1) which shows the blend of an epoxy resin and the claimed species of photoinitiator. The issue of patentability regarding these references is the additional presence of the acid anhydride (Hamazu et al., col. 5, line 14) which is disclosed but not exemplified when considered in combination with the Green (et al.) patents and Starkey.

The enclosed Form PTO-892 cites the prior art presented in the Information Disclosure Statement filed September 13, 2002 (Paper No. 14) wherein a Form PTO-1449 was not received.

(703) 308-2399 (Fax no. (703) 872-9310)
Monday to Friday from 9:30 to 6:00 EST

Robert Sellers
Primary Examiner
Art Unit 1712

rs
4/14/03